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Application

MANAGING THE HEALTH IMPACTS OF DROUGHT IN BRAZIL: A COMPREHENSIVE RISK REDUCTION FRAMEWORK

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CONTEXT

Drought is largely a hidden risk and its health impacts are poorly understood and recorded. In contrast to other climate-related events, drought appears slowly and silently, showing neither an evident onset nor immediate impacts in the short term. Yet the impacts can last for years, even after rainfalls resume, and poor and vulnerable populations tend to suffer the greatest consequences (6, 7). Droughts can have impacts on known health risk factors such as use of inadequate or unsafe water for consumption and sanitation, increased population displacement, and disruption of local health services. It also impacts acute and chronic health effects including malnutrition, increased risk of communicable diseases, respiratory conditions, psychosocial stress and mental health disorders (8–13).

Between 1960 and 2013, 612 drought events resulted in 2.19 million deaths and 2.14 billion affected persons globally (14). In Brazil, disaster notifications are issued by municipalities, and between 1991 and 2010, there were close to 17 000 drought events recorded in 2 944 municipalities, making it the most frequent disaster by type. Of the 96 million people affected by natural disasters in these 20 years, 48 million (50%) were affected by drought (flash floods and other floods made up to 40%); and over a total of 2 475 registered deaths, roughly 10%, were drought related (15). Some parts of the country undergo sporadic dry seasons, while other parts are permanently dry. Given the increase in temperature and decrease in rainfall expected throughout the current century, there is a risk that the semi-arid areas located in the northeast of the country, home to over 22 million people, will begin a process of desertification. This fact highlights the necessity of gaining a better understanding of the health impacts of drought in Brazil and taking action accordingly.

Figure 6.5 Home in drought-affected area in Rio Grande do Norte, Brazil Photo credit: Aderita Sena.



NEW APPROACHES

Given the slow onset and the large lag-time to identify measurable health impacts, drought can be seen as a chronic emergency. Therefore, it tends to attract less attention than acute emergencies, which has adverse consequences for health preparation and response. The Ministry of Health in Brazil decided to establish a clear management process to implement actions of risk reduction, disaster management and recovery, and adaptation. Drought conditions may be monitored by a variety of indicators such as accumulated precipitation, temperature, humidity and vegetation status. These data are now being made available by governmental agencies, and their joint analysis is an important strategy to identify the extension and magnitude of droughts.

Disaster risk reduction in the health sector in Brazil follows a well-documented framework, which includes three stages: risk reduction, disaster management and recovery. This framework is adapted for drought management, emphasizing the concept of adaptation (16). The steps are shown in Figure 6.6, with examples of community participation.

CASE STUDY 6B



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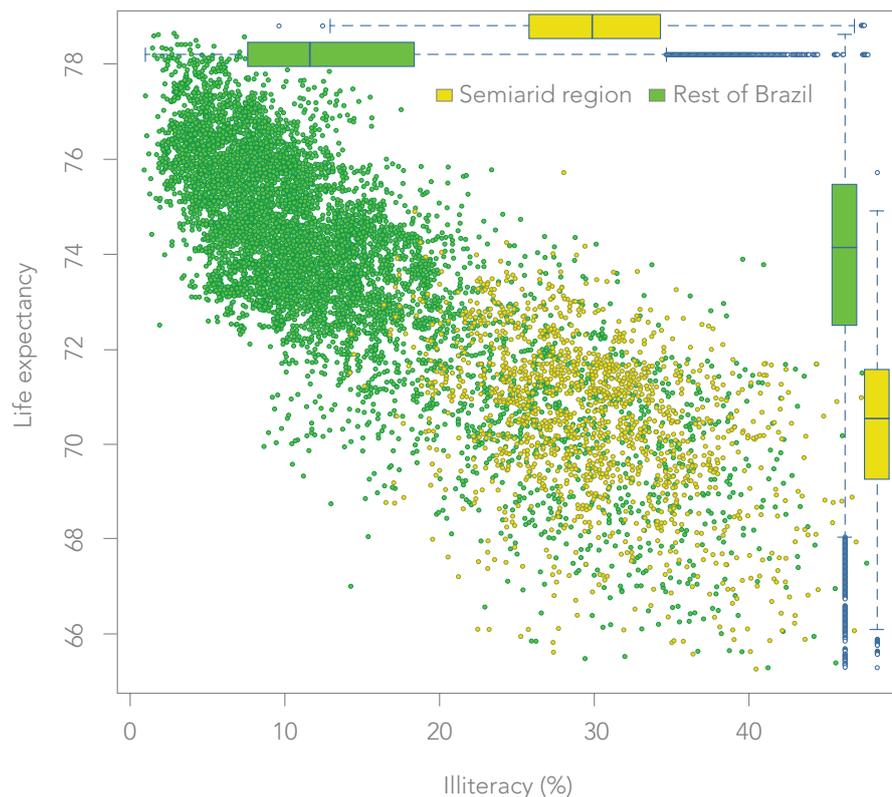
Application

BENEFITS AND LESSONS

Important progress has been made in Brazil in reducing social and economic vulnerability to droughts. Social programmes such as the conditional cash transfer programme known as 'Bolsa Familia' and health programmes such as 'Family Health' have contributed to reducing the impact of the most recent drought (2011–2013), ensuring the country will never again experience past catastrophic events. In the drought of 1877–1878, there were some 500 000 deaths from drought and smallpox. More recently, the drought from 1979–1983 was responsible for tens of thousands of deaths (17).

Local governance and complete community participation are necessary for successful and sustainable actions (18). Although progress has been made in recent years, much more is needed to ensure health is seen as a key partner in drought risk management. Expected global climate changes are likely to make drought events more serious in the next few decades (19). As a consequence, it is necessary to address policies to reduce social and economic vulnerability to droughts combined with the development of adaptive capacity and resilience at the local level. Although not highlighted specifically as health sector actions to reduce vulnerability, programmes for household water storage, expanding cisterns to collect rainwater before drought, building dams and drilling wells, financial support to agriculture, and ensuring a minimum income during drought are some examples of interventions with positive impacts on health and population well-being. Alerts for intense drought are important tools for sector-specific interventions, such as for the agricultural sector in order to prevent larger impacts in the local economy and inform water resource managers to conserve and prioritize water usage.

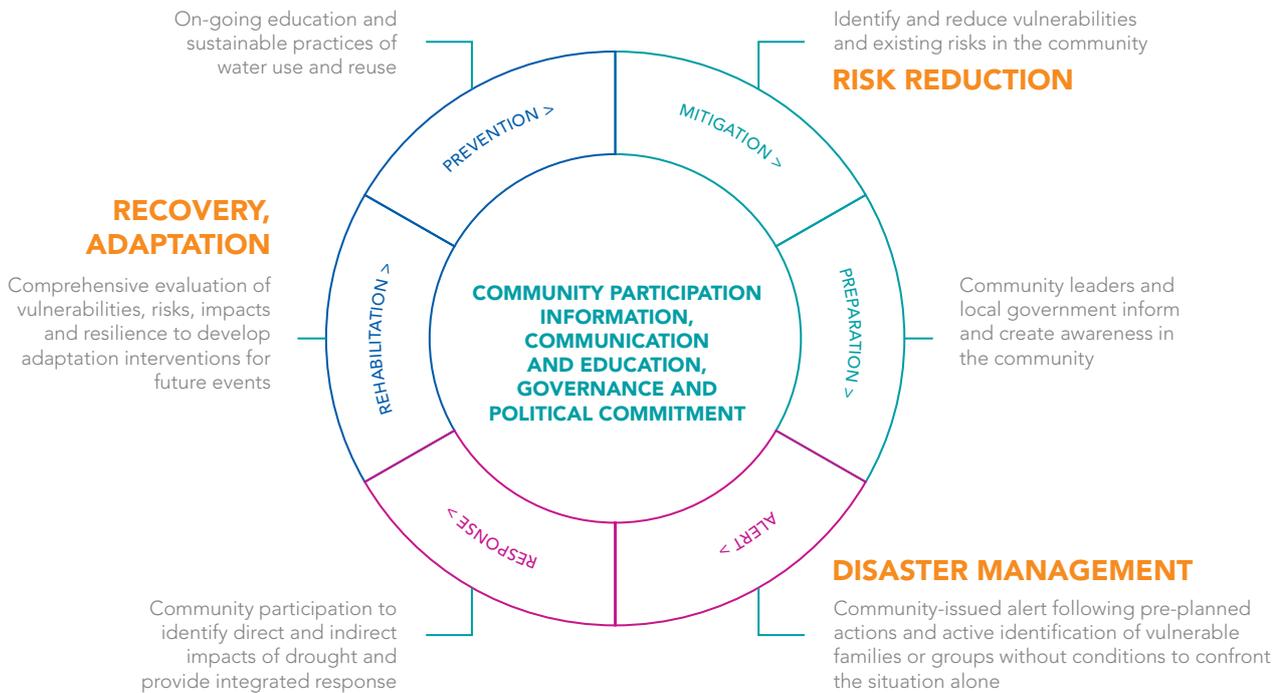
Figure 6.6 Inequalities between 1 133 municipalities in the semiarid region and 4 432 municipalities in the rest of Brazil: illiteracy (%) and life expectancy (2010).



The health sector also has a key role promoting awareness of health risks and the social and environmental vulnerabilities of specific areas and communities, and to finding mechanisms to increase the resilience of local communities and local government health services. The health sector needs to ensure that all health risks, from the most immediate and visible (such as infant diarrhoeal diseases), through to the longer-term yet visible impacts (such as malnutrition), to the less visible and delayed in time (such as mental health conditions and other chronic diseases), are fully included in its assessments and response. This will also ensure coherence with the Sustainable Development Goals.

For further information on this case study, refer to Sena et al (20).

Figure 6.7 Adapted disaster risk reduction framework, highlighting community participation.



ACKNOWLEDGEMENTS

